Compare of Antibiotic Resistance Rate Between Burn and Non Burn P. aeruginosa Isolates and to Detect the Prevalence of Metallo Beta-Lactamase Production Among Them

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Background & Objectives: *P. aeruginosa* is clinically troublesome pathogen that causes a wide range of infections; P. aeruginosa isolates generally demonstrate resistance to various antimicrobial agents due to various mechanisms like B-lactamase production such as metallo-B-lactamase (MBL) enzymes that can hydrolyze most b-lactam antibiotics. The aim of this study were to determine the antibiotic susceptibility patterns of *P. aeruginosa* isolates, compare antibiotic resistance rate between burn and non burn *P. aeruginosa* isolates and to detect the prevalence MBL production among them.

Methods: 135 *P. aeruginosa* burn isolates from Motahari Hospital and 35 P. aeruginosa non burn isolates from Emem khomeyni, shohada and naft hospital in Tehran were collected and were identified using the standard biochemical tests. The antibiotic resistance profile was determined using 12 antibiotic disks by the Kirby-Bauer disk diffusion Methods. All isolates were screened for MBL production by the double-disk synergy test (DDS).

Results: *P. aeruginosa* burn isolates showed high resistance to all antibiotics, the greatest resistance was observed against carbenicillin and ticarcillin (100%) and the least resistance was against piperacillin-tazobactam (86.4%) while P. aeruginosa non burn isolates showed low resistance to all antibiotics, the greatest resistance was observed against carbenicillin (41%) and the least resistance was against piperacillin-tazobactam and amikacin (20%). 32(25%) burn isolates were metallo-b-lactamase producer while only 1(2.8%) of non burn isolates was metallo-b-lactamase producer.

Conclusion: The antibiogram results of burn and non burn isolates were extremely different from each other. All *P. aeruginosa* burn isolates were multidrug resistance probably because of higher production rate of metallo-b-lactamase, broader application of antibiotics in burn hospital, longer duration of patient stay in hospital or larger area involved.

Keywords: Metallo-B-Lactamase; *Pseudomonase aeruginosa*; Burn Isolates; Antibiotic Resistance